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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/762,100	Applicant(s) HERRE ET AL.	
	Examiner Disler Paul	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/31/05;3/29/05;6/20/05</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 3 is objected to because of the following informalities: Applicant needs to correct the misspelling by replacing lest surround with appropriate words of "left surround".
Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. Claim 12 recites the limitation "weighting factor " in claim 1. There is insufficient antecedent basis for this limitation in the claim.
 - b. Claim 11, recites the limitation "coherence measure" in claim 1. there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1,2,4-7, 9-21,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baumgarte et al. (2003/0236583 A1) and Maejima (2001/0014160 A1) and Baumgarte et al. (7,0006,636 B2).

Re claim 1, Baumgarte et al. disclose of the apparatus for constructing a multi-channel output signal using an input signal and parametric side information (fig.1 (108,114,116; fig.2/wt parameter info and input signals multiple output channels produced), the input signal including a first input channel and a second input channel derived from an original multi-channel signal (fig.1 (118); fig.2 (208)), the original multi-channel signal having a plurality of channels, the plurality of channels including at least two original channels, wherein a first original channel is a first one of the at least two original channels, and wherein a second original channel is a second one of the at least two original channels (fig.1; fig.2 (208); fig.2[0024]/downmix technique to reproduce the multichannels in varying ways), and the parametric side information describing interrelations between original channels of the multi-channel original signal (page 1[0008] line 6-9/for each frequency inter-aural time difference value between the two channels), But Baumgarte et al. fail to disclose of the comprising: means for determining a first base channel by selecting one of the first and the second input channels or a combination of the first and the second input channels, and for determining a second base channel by selecting the other of the first and the second input channels or a different combination of the first

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and the second input channels, such that the second base channel is different from the first base channel. However, Maejima disclose of a sound field correction wherein there is the means for determining a first base channel by selecting one of the first and the second input channels or a combination of the first and the second input channels, and for determining a second base channel by selecting the other of the first and the second input channels or a different combination of the first and the second input channels, such that the second base channel is different from the first base channel (fig.1-4;page 2[0025]/based channel with different combinations) for the purpose of providing multichannel surround effect. Thus, taking the combined teaching of Baumgarte et al. and Maejima as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Baumgarte et al. by incorporating the means for determining a first base channel by selecting one of the first and the second input channels or a combination of the first and the second input channels, and for determining a second base channel by selecting the other of the first and the second input channels or a different combination of the first and the second input channels, such that the second base channel is different from the first base channel for the purpose of providing multichannel surround effect.

While the combined teaching of Baumgarte et al. and Maejima as a whole, teach of the above, they fail to disclose of the channels which are defined as being located at one side of an assumed listener

position. But, Baumgarte (36) et al. disclose of an auditory scene wherein the channels which are defined as being located at one side of an assumed listener position (col.1 line 20-60) for the purpose of giving the perception that the sound are located at different position relative to the listener. Thus, taking the combined teaching of Baumgarte et al. and Maejima and now Baumgarte(36) et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Baumgarte et al. and Maejima and now Baumgarte(36) et al. as a whole, by incorporating the channels which are defined as being located at one side of an assumed listener position for the purpose of giving the perception that the sound are located at different position relative to the listener.

The combined teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, would have incorporate the means for synthesizing a first output channel using the parametric side information and the first base channel to obtain a first synthesized output channel which is a reproduced version of the first original channel which is located at the one side of the assumed listener position, and for synthesizing a second output channel using the parametric side information and the second base channel, the second output channel being a reproduced version of the second original channel which is located at the same side of the assumed listener position (Baumgarte,fig.1 (116,fig.2/plurality of output synthesize

with parametric side and channel info at different listener locations (L, R)).

Re claim 2, apparatus in accordance with claim 1, However, the combined teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, fail to disclose of the further comprising: means for providing a coherence measure, the coherence measure depending on a coherence between a first original channel and a second original channel, the first and the second original channels being included in an original multi-channel signal. But, Baumgarte (36) disclose a system wherein the means for providing a coherence measure, the coherence measure depending on a coherence between a first original channel and a second original channel, the first and the second original channels being included in an original multi-channel signal(fig.4, col.6 line 15-35) for the purpose of preventing auditory image errors, by generating too narrow images of dry acoustic impression. The further teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, would have incorporate the means for determining is operative to determine the first and the second base channels different from each other based on the coherence measure (Bam (36); fig.4/with left and right channels creating different measure, see col.6).

Re claim 4, the apparatus in accordance with claim 1, in which a combination of the first and the second input channels determined to be the second base channel (Maejima (fig.3-4/upmix with different channel combinations). But, the combined teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, fail to teach of the specific of determine the second based is determined as such that one of the two input channels contributes to the second base channel more than the other input channel. But, official notice is taken that having one of the two input channels contributes to the second base channel more than the other input channel is commonly know in the art, thus it would have been obvious for one of the ordinary skill in the art to modify Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, to incorporate the having one of the two input channels contributes to the second base channel more than the other input channel for forming the base signals primarily based on the desired channel.

Re claim 5, the apparatus in accordance with claim 2, in which the coherence measure is time-varying such that the means for determining is operative to determine the second base channel as a combination of the first input channel and the second input channel, the combination being variable over time (Bam (36); col.6 line 10-14).

Re claim 6, the apparatus in accordance with claim 1, in which parametric side information includes the coherence measure, the coherence measure being determined using the first original channel and the second original channel, wherein the means for providing is operative to extract the coherence measure from the parametric side information (Baum, fig.4/ coherence measure from parametric side and see (fig.3)).

Re claim 7, the apparatus in accordance with claim 6, the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole would have incorporate the input signal has a sequence of frames and the-parametric side information includes a sequence of parameters including the coherence measure, the parameters being associated with the frames (Baum(83); page 1[0008] line 5-7; page 3[0035] line 5-15).

Re claim 9, the apparatus in accordance with claim 1, in which the parametric side information are frequency dependent and the means for synthesizing are operative to perform a frequency-dependent synthesis (page 1[0010]/all in frequency implemented).

Re claim 10, the apparatus in accordance with claim 1, in which the parametric side information include binaural cue coding (ECC) parameters including inter-channel level difference parameters and inter-channel time delay parameters (page 1[0008]), and further the

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combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole, would have further incorporate the means for synthesizing is operative to perform a BCC synthesis using a base channel determined by the means for determining when synthesizing an output channel (see claims 1 explanation).

Re claim 11, the apparatus in accordance with claim 1, in which the means for determining is operative to determine one of the base channel as a weighted combination of the first and the second input channels, a weighting factor depending on the coherence measure (fig.4/ wt coherence; averaging between multiple channels; col.6 line 20-35), and the further combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole, disclose of the determine the first base channel as one of the first and second input channels (see claim 1 on obviousness rejection).

Re claim 12, the apparatus in accordance with claim 1, in which a weighting factor is determined (Baum(36), col.7 line 1-5), However, the combined teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, fail to disclose of the weighting factor as follows: $\alpha = \frac{1}{2} \left(\frac{B^2}{A^2 + C^2} \right)^{1/2}$, wherein α is the weighting factor, and wherein A, B, C are determined as follows, $A = C \cdot \frac{1}{L^2} \cdot \frac{1}{R^2}$ $B = 2LC(1 - k^2)$ $C = L \cdot \frac{1}{R^2} (1 - k^2)$ wherein L, R, C are determined as follows, $L = \frac{1}{\sqrt{A^2 + B^2}}$ $R = \frac{1}{\sqrt{A^2 + C^2}}$ $C = \frac{1}{L} \cdot \frac{1}{R}$ and wherein k is the coherence measure, and

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wherein l is the first input channel and r is the second input channel. However, official notice is taken that such formula above, is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to modify Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, by incorporating this above formula in the weighting factor for synthesizing the signal.

Re claim 14, the apparatus in accordance with claim 11 with coherence measure (Baum(36), fig.4, col.4), However, the combined teaching of Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, fail to teach of the coherence measure is determined as follows: $2cc(x, y) = x^2 y^2$, wherein $cc(x, y)$ is the coherence measure between two original channels x, y , wherein $x_{sub.i}$ is a sample at a time instance i of the first original channel, and wherein $y_{sub.i}$ is a sample at a time instance i of the second original channel. But, official notice is taken that that such formula above, is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to modify Baumgarte et al.(83) and Maejima and Baumgarte (36) as a whole, by incorporating this above formula in the coherence measure for preventing auditory image errors.

Re claim 13, the apparatus in accordance with claim 11, in which the coherence measure is given for a frequency band and the second base channel for the frequency band (col.6 line 25-33; fig.4).

Re claim 15, the apparatus in accordance with claim 1, in which the means for determining is operative to scale the output channels using power measures derived from the original channels, the power measures being transmitted within the parametric side information (Baum(36), col.6 line 36 & up to col. 7 line 1-15).

Re claim 16, the apparatus in accordance with claim 11, in which the means for determining is operative to smooth the weighting factor over time and/or frequency (Baum (36), col.7 line 47-60/weight factor to be constant over frequency).

Re claim 17, the apparatus in accordance with claim 1, in which the parametric side information include level information representing an energy distribution of the original channels in the original signal (Baum, page 4[0040]/adjust for energy distribution), and wherein the means for synthesizing is operative to scale the output channels such that a sum of the energies of the output channels is equal to a sum of the energies of the first input channel and the second input channel (col.8 line 13-20).

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Re claim 18, the apparatus in accordance with claim 17, would have incorporate the means for synthesizing is operative to calculate raw output channels based on determined base channels and the level information (Baum(83), fig.1 (116, synthesis based on based channel and signal channel level as disclosed wt combined Baum (36)) and to scale the raw output channels such that a total energy of scaled raw output channels is equal to a total energy of the first and the second input channels (Baum(36,col.8 line 6-16/uniform distribution scale logarithm)).

Re claim 19, the apparatus in accordance with claim 1, in which the input signal includes a left channel and a right channel, However the combined teaching of Baumgarte et al. and Maejima and now Baumgarte(36) et al. as a whole, fail to teach of the original channel includes a left surround channel, and a right surround channel. But, Sato disclose of a matrix sound decoding wherein the original channels include the left surround original channel or right surround original channel (fig.1-2/Left and right channels included) for the purpose of producing two-channel surround channel output signals. Thus; taking the combined teaching of Baumgarte et al. and Maejima and now Baumgarte(36) et al. and now Sato as a whole, it would have obvious for one of ordinary skill in the art to modify Baumgarte et al. and Maejima and now Baumgarte(36) et al. as a whole, by incorporating the original channels include the left surround original channel or right

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surround original channel for the purpose of producing two-channel surround channel output signals.

The combined teaching of Baumgarte et al. and Maejima and now Baumgarte(36) et al. and now Sato as a whole, would have incorporate the combination of the left channel and the right channel as the base channel for the left surround channel or the right surround channel (fig.2-3/channels combined to formed Center or surround channels).

But, the combined teaching of Baumgarte et al. and Maejima and now Baumgarte(36) et al. and Sato as a whole, fail to teach of the means for determining is operative to determine the left channel as the base channel for a synthesis of the front left channel, the right channel is the base channel for a synthesis of the front right channel. However, official notice is taken that such limitation of having the left channel as the base channel for a synthesis of the front left channel, the right channel is the base channel for a synthesis of the front right channel is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to have modified Baumgarte et al. and Maejima and now Baumgarte(36) et al. and Sato as a whole, to incorporate the having the left channel as the base channel for a synthesis of the front left channel, the right channel is the base channel for a synthesis of the front right channel for generating additional channel signals.

Re claim 20 has been analyzed and rejected with respect to claim 19 above.

Re claim 21 has been analyzed and rejected with respect to claim 1.

Re claim 25 has been analyzed and rejected with respect to claim 1.

3. Claims 22-24,26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baumgarte et al. (2003/0236583 A1) and Baumgarte et al. (7,0006,636 B2).

Re claim 22, Baumgarte et al. disclose of the apparatus for generating a downmix signal from a multi-channel original signal, the downmix signal having a number of channels being smaller than a number of original channels (fig.2 (208,210; page 2[0024]; fig.3(308)), comprising: means for calculating a first downmix channel and a second downmix channel using a downmix rule (fig.2 (210); mono two components); means for calculating parametric level information representing an energy distribution among the channels in the multi-channel original signal (fig.2(216)). While, baumgarte et al. disclosed

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of the above, He fail to disclose of the means for determining a coherence measure between two original channels. But, Baumgarte et al. (36) disclose a system wherein the means for determining a coherence measure between two original channels (fig.4) for the purpose of preventing auditory image errors, by generating too narrow images of dry acoustic impression. Thus, taking the combined teaching of baumgarte et al. and Baumgarte et al. (36) as a whole, it would have been obvious for one of the ordinary skill in the art to modify baumgarte et al. to incorporate the means for determining a coherence measure between two original channels for the purpose of preventing auditory image errors, by generating too narrow images of dry acoustic impression. While, the combined teaching of baumgarte et al. and Baumgarte et al. (36) as a whole, teach of the above, they fail to further teach of the two original channels being located at one side of an assumed listener position. But, Baumgarte et al. (36), further disclose the system wherein the two original channels being located at one side of an assumed listener position (col.1 line 20-50) for the purpose of giving the perception that the sound are located at different position relative to the listener. Thus, taking the combined teaching of baumgarte et al. and Baumgarte et al. (36) as a whole, it would have been obvious for one of the ordinary skill in the art to modify baumgarte et al. by incorporating the two original channels being located at one side of an assumed listener position for the purpose of giving the perception that the sound are located at different position relative to the listener.

The combined teaching of baumgarte et al. and Baumgarte et al. (36) as a whole, further teach of the means for forming an output signal using the first and the second downmix channels, the parametric level information and only at least one coherence measure between two original channels located at the one side or a value derived from the at least one coherence measure, but not using any coherence measure between channels located at different sides of the assumed listener position. (fig.1 (104 wt (108,116), coherence used for only the two left and right channels.)).

Re claim 23, the apparatus in accordance with claim 22, further comprising means for determining time delay information between two original channels located at one side of the assumed listener position; and wherein the means for forming is operative to only include time level information between two original channels located at one side of the assumed listener position but not time level information between two original channels located at different sides of the assumed listener position (page 1[0008] line 1-6/time difference between the channels for auditory listener positional).

Re claims 26, 24 has been analyzed and rejected with respect to claim 22.

4. Claims 3,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baumgarte et al. (2003/0236583 A1) and Maejima (2001/0014160 A1) and Baumgarte et al. (7,0006,636 B2) and further in view of Sato et al. (2003/0210794 A1).

Re claim 3, the apparatus in accordance with claim 1, in which the at least two original channels include a left original channel or a right original channel. But, The combined teaching of Baumgarte et al. (83) and Baumgarte et al. (36) as a whole, fail to disclose of the original channel include the left surround original channel or right surround original channel. However, Sato disclose of a matrix sound decoding wherein the original channels include the left surround original channel or right surround original channel (fig.1-2/Left and right channels included) for the purpose of producing two-channel surround channel output signals. Thus, taking the combined teaching of Baumgarte et al. (83) and Baumgarte et al. (36) and now Sato as a whole, it would have obvious for one of ordinary skill in the art to modify Baumgarte et al. (83) and Baumgarte et al. (36) as a whole, by incorporating the original channels include the left surround original channel or right surround original channel for the purpose of producing two-channel surround channel output signals.

Re claim 8, the apparatus in accordance with claim 1, However the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole, fail to disclose of the original signal further includes a center channel. But sato et al. disclose a system wherein the original signal further includes a center channel (fig.1-2) for the purpose of producing two-channel surround channel output signals. thus, taking the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) and now Sato et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole, by incorporating the original signal further includes a center channel for the purpose of producing two-channel surround channel output signals. The combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) as a whole, further teach of the determining a plurality of channel using the two input channels (fig.1(116) multiple output is generated), However, they fail to disclose of the specific of calculating a third base channel using the first input channel and the second input channel in equal portions. But, the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) and Santo as a whole, teach of the plurality of coherence measures with cues to determined output channel and averaging of the channels (fig.4,5), thus official notice is taken that it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Baumgarte et al.(83) and Baumgarte et al. (36) and Santo as a whole, to incorporate the specific of calculating a

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third base channel using the first input channel and the second input channel in equal portions for generating multiple output channels.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Henn et al. (2005/0053242) disclose of the with encoder with parametric and channel information for regenerating output signals.

Shirayanagi (2002/0067834) disclose of the generating plurality of channels signals via adding and multiplication factor.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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